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PHOTOGRAPHIC LITERATURE.

THE twelfth annual convention of the Photographers' Association of America meets at Buffalo, July 14th to 17th, and from the efforts made by the officers it is expected that it will prove even a greater success than the last convention at Washington, with its extra attraction of unveiling the Daguerre memorial.

In connection with this important gathering we want to say a few words, not alone to the members of the association and to the visitors, but to all progressive photographers in general. Without doubt, the usual number of excellent papers will be read, and much practical knowledge imparted and information gained. There is one subject, however, of vital importance to the professional photographer, which, so far as our knowledge extends, has been strangely neglected at these annual gatherings: we allude to photographic literature.

It is becoming more apparent every day that the photographic fossil who pays no attention to the current photographic publications is being forced to the rear, to make room for the men of the present, who keep abreast with the times by reading the photographic literature of the day, and thus are in a position to utilize the latest discoveries in both dark room and studio in connection with the modern methods of attracting visitors and patronage to their establishments such as are now required by the public, in addition to good work at reasonable prices.

The intelligent photographer who in catering for the general public uses business methods to draw clientage into his studio, recognizes the fact that nothing is more necessary than to keep posted on what goes on in other communities. This can be only done by supporting his local and current photographic periodicals.

It would be an interesting fact to know what percentage of photographers present at this convention subscribe to and read regularly any of the photographic magazines of the day. If the roll could be called it would surely be found that the most flourishing and prosperous of the craft throughout the country are those who keep up with the photographic literature of the day.

It will further be found that the busiest man finds the most time to read, and will go through the advertisements as well as the subject matter; while the man who has nothing to do and whose business is dull can never find time to read. It is the latter class, the photographic fossil, who has no use for magazines or journals. The only thing he can find time for is to continually harp on the fact that there is no future for photography as a business, merely because his own business is going to the dogs, and simply because he has not brains or common sense enough to subscribe to and read a photographic publication, and thus keep up with the requirements of modern needs.

Another matter of regret is the indifference displayed to current photographic literature by the large majority of employés in the photographic establishments throughout the country. If employers would insist upon their employés reading the various periodicals, or, better yet, furnish one or two for their use in the studio, the work would soon show better results, while the employé would also find that he could elevate himself beyond the position which he happens to occupy. To such as want to advance the various periodicals furnish the means in lieu of capital.

Without doubt, all of the American photographic periodicals will be represented at this convention; and while we should like all present,—employers, exhibitors, assistants, or visitors,—be their connection with practical photography ever so remote, to subscribe to the AMERICAN JOURNAL OF PHOTOGRAPHY, we will say that if any one thinks another journal or magazine would

suit their wants better, that is the serial to subscribe to. We have no objection so long as they subscribe to and read some current photographic literature of the day. Remember, they are all published in your interest and for your benefit, as much as for the advancement of photography. It is only by this means that you can prevent the moss from growing on your back and increase your bank account.

Almost all of the American and British journals are edited by men of erudition and standing in the literary and scientific world, and it is your duty to encourage the efforts they are making in your behalf.

Germany and Austria now lead all other countries in respect to their educational facilities; next come Great Britain and France, and last of all this great nation, the United States. Now how was this precedence gained? Simply by the fact that German and Austrian photographers support and read their current photographic literature. These publications have brought them closer together, started investigations, and brought about comparisons and results, which place the above two countries, photographically, far in advance of all others.

The same opportunity exists in our own county. Remember, our technical literature is second to none, as may be seen in all foreign journals by quotations from American magazines. Your local societies may be all right and do good work, but your photographic journal does still better. It reaches a hundred where personally you can reach but one. Further, it should be the chief aim of every photographic society to support photographic literature, and to induce its members to subscribe to at least one photographic periodical. Remember, so far as camera clubs go, less negatives and more reading will result in better work.

Another thing: because you do not like a particular periodical, for personal reasons, it is no cause why you should condemn all others, and not subscribe to any; this only shows narrow-mindedness. No matter what publication you take, read it carefully and regularly; if any single article does not please you, don't condemn the publication on that account. If you are certain that an error has crept in, write to the editor, who will always be glad to hear

from you, and be but too willing to rectify any mistake. Another thing: if you discover anything of value to the craft in general, send it to the editor of any magazine you like, and thus give others the benefit of your experience, as others have done to you.

In conclusion, we will say a few words for ourselves. Our aim has been to make the AMERICAN JOURNAL OF PHOTOGRAPHY an indispensable companion to all professional photographers. We have spared no pains nor efforts to keep our readers thoroughly posted on what was going on in the photographic world, a special feature being the latest formulæ and deductions from all sources, home and foreign, translations from the German, French, Italian, and Spanish appearing in almost every number. Our forms are so arranged that, when bound, no advertisement whatever need appear in the volume, if it is so desired. This feature, together with the encyclopedic index furnished at the end of the year, puts an invaluable book of reference in the hands of the wide-awake subscriber.

That our efforts have been appreciated is shown by our largely increased subscription list; and we now ask all the progressive photographers who are not yet enrolled to send us their names and subscriptions.

JULIUS F. SACHSE.

Our Butterflies.—In reply to several communications regarding the species of the butterflies and moths in the frontispiece of the May JOURNAL, illustrating our "*Suggestions for a Possible Method of Identifying the Colors Photographed*," we will state that we should have given this information in our May number, but the matter was unfortunately crowded out.

NAMES OF LEPIDOPTERA.

(1) *Harma sangaris;* Central Africa. (6) *Callithea sapphira;* Amazon.
(4) *Prepona demophon;* Hayti.
(2) *Leptocircus curius;* Assam. (7) *Heliconius charitonia;* Florida.
(3) *Colias cæsonia;* Florida. (8) *Catagramma pitheas;* Peru.
(5) *Gonepteryx mærula;* Jamaica.

We will further state that the almost universal republication of our paper, together with the words of cheer and many letters of endorsement received upon this subject, shows how greatly our suggestion has been appreciated, and how widespread the interest which the subject has engendered. We hope to chronicle still better results before the present volume is completed.

SHADOWS IN PORTRAITURE.

BY XANTHUS SMITH.

THERE is so much attention given to the subject of *lighting* in photographic portraiture, so much talking and writing about where the light should come from, and how much there should be of it, and in what way it should fall upon the features, that it seems to the writer that the very important subject of the shadows is being entirely overlooked, and he humbly begs leave to offer some remarks upon this, as he considers it, very important factor, namely shadow, in the art of making a good likeness and an agreeable picture.

Shadow is the repose of art, the sentiment of art, and the web of setting, as it were, for our lights. It gives us our contrasts and our relief. It is by the breadth and depth of our shadows that we get the true values and brilliancy of our lights and those forcible effects which are so sought after by great painters.

All who have read about or paid any attention to the subject of art know that the secret of the great painter Rembrandt's success was his skillful mastery of the principles of shadow. He subordinated all else to it, and it is in consequence of the very large proportion of shadow in his works that his lights stand out with such marked effect.

While many painters considered one-fourth a sufficient amount of shadow for a picture, Rembrandt often reduced the amount of light in his works to one-eighth, and although it would not do for all to venture so large a predominance of shadow,—for what with Rembrandt produced brilliancy with imitators resulted in sombreness and heaviness,—yet by a careful study of shadow, and its proper management, we may expect to attain some of our finest effects.

Mystery is an important quality in art. The inquiring and inventive faculties of the mind are occupied by it. When all is spread before us at once, under a brilliant illumination, the eye passes over the subject, takes in all with quick comprehension, and is as quickly satisfied. But when much is subordinated,

obscured, in a measure hidden, then do we search and build up in our fancies ideas in harmony with the subject and agreeable to ourselves. Poets and lovers of nature, and painters as well, love to dwell upon her in the early morning or in the evening hours. Why do they treat with indifference the brilliant glare of noonday sunshine? Simply because it is in the morning and evening that they find that predominance of shadow which gives nature its repose and sentiment, and we may further add, its solemnity and impressiveness.

It is then that the fancy may have full play in the broad passages of quiet repose, and the eye be gratified by the sparkling lights; it is then that nature gives us her pictures instead of yielding up her every separate feature.

Shadow is the great modeler, the moulder of form. By its judicious use in portraiture we round up our heads, produce the overhang of our eyebrows, cause our noses to protrude, and give shape to our mouth. We have only to pose a sitter in front of and directly facing a large window, and photograph him thus, to be fully convinced of the just value of well-cast shadows. The head and face will be amply lighted, no one can dispute that, but who would be satisfied with such a miserable, pale, flat representation of themselves as would result from such a picture? Under the eyebrows, under the nose, and under the chin would we have the same illumination as on the forehead, cheeks, and, in fact, all the other prominences?

Instead of an intelligent countenance we would have a pale, glaring stare. Now, let us obscure the lower half or two-thirds of our window and try another picture, and see what a difference we will have wrought.

A high, soft lighting is undoubtedly the proper one for the majority of sitters. Occasionally we see individuals, more generally ladies and children, possessing some peculiar piquancy of expression, who will make taking pictures in almost any pose or lighting. Such heads are apt to find their way into the showcases, provided permission be obtained to exhibit them. These pictures are well because their excellence is founded on the intrinsic symmetry of the face. It is when we come to deal with

the average man and woman that our greatest difficulty arises, because being neither picturesque nor beautiful they drop into the commonplace. People do not generally admire themselves treated in a commonplace way. They all want to be made to look handsome and with more dignity than they possess. Like the young fellow who volunteered to pose to his artist friend for the head and figure of Brutus, and being aware of his very insignificent appearance said: "Now, Brush, you will have to throw in all the dignity of the noble Roman you know." The safest way with this large class of sitters is a good bestowal of shadows just where they are wanted. Not too strong and black, but full and soft, and the lights soft also. It is only in heads of marked character and when the individuals themselves will permit it that very vigorous shadows may be allowed, and then we have good pictures of a higher artistic order, which may be characterized as picturesque.

We sometimes see in show-cases photographs of individuals taken under some trick treatment, which, though rather attractive at first glance, will not bear analyzing and study, and which, if we have occasion to pass the place frequently, become excessively disagreeable and annoying to us. One of these tricks is obscuring the face in shadow with a harsh line of light on one side. If you have a lean, hatchet-faced man or woman with a very prominent nose, and treat them after this manner, especially large, you will have something attractive, certainly, but you won't find its charms lasting. We all know that we may have too much of a good thing, and indeed with many things the better they are the sooner we surfeit of them,—and so we may have too much shadow. We must remember that a countenance may be overwhelmed with shadow. The shadow is to be used to develop the features, and not to obscure them. We must make shadow our servant, and not allow it to become our master. We too often see in the show-cases at the entrance to prominent photographers' galleries, and where there is a display of an abundance of elaborate work,—work which has called forth the greatest knowledge and skill in technique to produce,—a universal misconception of the true use of shadow. In many instances, in fact, shadow seems to be the aim

and end, as if shadow should be the picture, instead of the means of producing it. How disappointing it is, for instance, to see a series of fine, large heads wherein the sitters have been posed against an even half-shadow background, and the entire face thrown in shadow or rather half-shadow, except one temple and the nose, the light having been kept well back. Of course the back of the head, ear, and back of the neck are in strong light. This with a well upturned face, three-quarters, or nearer profile, and as complacent an expression as can be got, is a favorite mode of treatment, and very absurd when looked upon as anything but a curiosity; and a still more objectionable effect is when the head is posed against a white background and lighted from back, no reflection used on the shadow side, so that the face cuts very harshly against the ground, the whole face appearing very dark except the nose, which with the upper corner of the forehead gets a full whack of light. Now you see that owing to the nose being a very prominent feature, it is difficult in this shadow treatment to make it succumb to the rest; it will stick out and catch some light in spite of us, and even when it is a handsome nose it ought scarcely to receive all the light when the rest of the features are not receiving any. Another difficulty with shadow pictures is to prevent all the lower portion of the face from falling into too low a tone, because from the cheeks rounding in and the chin receding and the mouth being overshadowed by the nose, the bottom half of the countenance is lost. An excellent way to study these matters is to look at such work with your eyes nearly closed. In this way you will lose all the details, and you will perceive only the main masses of light and dark. You will then perceive how absurd the effect often is,—and you should never lose sight of the fact that your main masses of light and dark must be well composed if you are to produce a good picture. The features of man are so formed and combined that with knowledge and care in the bestowal of the shadows a perfectly harmonious arrangement is produced even in the blocked-out mass, regardless of the finer details;—and when the details are wrought upon a justly arranged foundational effect, we have the most perfect whole as a result.

When it is desirable to make what is called a shadow or Rembrandt picture of a head or half-length, a much better effect is got by using a black or very dark background, because the flesh then at once takes its place as half-shadow, and by contrast has a certain luminousness, while against a middle tint or very light background it will appear dull and heavy. But such treatment—that is, casting the face in shadow—is best suited for handsome sitters, and where the plumpness of youth gives the flesh an evenness of texture that aids in securing softness. With the hollowness and wrinkles of age dullness and hardness is too apt to be the result. Much has been attained in some galleries where great pains has been bestowed in the matter of the casting and formation of shadows. The almost insurmountable difficulty of harshness of contrasts has been greatly overcome. It is a subject that requires much knowledge and practice. Nor should it be a matter of surprise to the photographer that it is so. Is not the work of the beginner in painting hard? and does it not take years of study and practice to enable the portrait-painter to attain the vigor and at the same time the softness and harmony of a master? The man who attains the most vigorous contrasts of light and dark,—for that is what makes the work telling upon the eye of the spectator,—and at the same time avoids harshness, and consequent hardness, in his work, is the successful man from an artistic point of view.

In order to make a good artistic head the deepest touches of shadow should come under the eyebrows, under the end of the nose, and about the mouth and chin. These should be supported by a proper amount of half-shadow coming about the eyes, under the cheeks, and about the chin, falling in such a way as to give a proper amount of roundness to the face and projection to the features. All this can be greatly aided by a nice timing of the exposure and careful development. How often do we see, even in large, carefully-got-up heads, a perfect uniformity of whiteness in all the directly lighted portions,—the flesh, the white hair and beards of old men, and the white linen of collar and shirt-bosom being identical in whiteness. This should not be. The linen should represent the highest light, the hair should come

next, and then the light flesh, a little lower in tone than either of the others; and then in the flesh we should be able to pick out readily five grades or degrees of tone, from the highest lights, which are accentuated on the upper corner of the forehead, over the eyebrows, over the cheek-bone, and on the bridge and end of the nose, to the very deepest touches of shadow under the eyebrows, under the nose, and about the mouth. These latter are the portions that remain clear in development, and in the old wet-plate days were represented by clear glass in the negative.

In conclusion, I have not said anything about the practical details of arrangement of skylight, its accessories, or posing, because my remarks are intended for those who are supposed to be well versed by actual experience in these matters, are working on a high standard of excellence, and are aiming to bring forth still better work. With all such I am in full sympathy, and at a future time will hope to offer some remarks about the very important matter of being able to secure the number of delicate gradations of tone, from high-light to deep-shadow, of which I have spoken. It is a matter of emulsion, timing, and development. Unfortunately, the emulsion or brand of plate is not entirely under the control of the general photographer. It is a matter of the best success of the best makers. The development, owing to the difficulty of obtaining absolute equality, is not as satisfactory yet as we will hope it may become, and the timing—well, we all know the difficulty. It is a matter of good judgment and hourly experience.

We have received from Wm. H. Roberts, of Moorestown, N. J., two fine prints from negatives made by moonlight. One, an especially fine print, was made on Cramer 35 plate, Darlot lens, largest stop, with a hand camera; exposure, 1½ hours; developer, pyro and soda. The picture is sharp and clear cut and perfect in detail in shadows. No. 2, on same make plate, exposed one hour and twenty minutes, lens Pantograph F11, lacks sharpness and detail in the shadows,—no doubt an error in focussing. We have never seen a softer or better moonlight negative than the one first noted.

INCONGRUITIES BETWEEN BACKGROUNDS AND SUBJECTS IN PORTRAITURE.

BY ELLERSLIE WALLACE.

EVERY photographer familiar with the requirements of the portrait studio will admit the truth of the assertion that backgrounds are indispensable; and yet, so flagrant are the violations of good taste in the misuse of them, that we have determined to ask our readers to follow us for a brief time while we tell them a little of what we have seen in the matter.

That successful portraiture depends very largely upon the background, properly so-called, is at once made obvious by looking at the early attempts of beginners in photography, who are unaware of the importance of having a background at all, or who do not know how to pose the subject before it. A subject photographed in any ordinary interior room, for instance, may have a background of wall covered with pictures or brilliantly lighted objects, which are never noticed in the hurry of making the negative, but which are so disagreeably prominent in the finished picture as to quite ruin the result. The trouble here is that the mantles, vases, and other objects are so large in size, and such strange-looking things, owing to their being out of focus (as they always are), that the attention of any one looking at the picture is immediately diverted from the figure and wanders among these irrelevant things. We have no doubt that the greater part of our readers have seen such things as this; perhaps they themselves occasionally may have perpetrated something of the kind when first taking up the camera.

To come now to a more practical consideration of the matter, we may say that for the average work of the portrait gallery nothing is so useful as the plain background. It certainly suits the majority of sitters better than any other kind. Now, to prove this assertion, we will ask those who may feel doubtful in the matter to walk through some portions of any large city, where portrait work is to be seen, and examine the show-cases, when they will not fail to recognize the truth of what we say.

Painted backgrounds, with impossible mock-Italian lakes and sugar-loaf-shaped mountains, are still to be seen, but would hardly be endurable, even if set up behind some special favorites of the stage in the characters of Romeo and Juliet. Perhaps if free vent were to be given to some sentimental fancy, such a scene might be used to back up a loving couple promenading in the light of a black paper moon, but the less of such stuff the better.

Indeed, it is hardly going too far to say that landscape backgrounds may sometimes be made to suit *portraits in character*, but that every attention should then be bestowed upon the matter, and the "eternal fitness of things" observed. By which we mean to say that Romeo and Juliet perhaps might walk on the shores of the Italian lake referred to, but certainly not in the farmyard of a cottage, which latter scene, however, would do very well as a background for some prima donna of light opera, or even for male characters in the same line of theatrical business.

A background consisting of *clouds*, double-printed in, might seem too absurd for mention; and yet, speaking of theatrical characters, we recall numerous cases where the advertising posters of Signor So-and-So, or Madame This-or-That, have shown the person in question sailing through a sea of clouds like the moon on a gusty autumn night.

Boys in sailor-dress on horseback, with a farmyard background; plain working-people in sumptuous interiors, fit for royalty; tramps in worn-out clothes, posed on the moonlight shore of the Romeo-and-Juliet-Italian-Lake; ladies in ball-dresses, in kitchens or nurseries; and much more of the same kind of thing it has been our unfortunate lot to see on many occasions.

But, on the other hand, we have sometimes seen very charming effects made by, for instance, putting the sailor-boy on a pole arranged with imitation cross-trees and a few ropes, so as to produce the effect of a ship's mast, and using nothing but clouds as a background. A telescope tucked under his arm and a few pulley-blocks on the mast render the picture complete and striking. A background of clouds would also be the proper thing for a party seated in a round, deep basket, with ascending ropes, to represent the car of a balloon.

In fact, so far as painted backgrounds are concerned, this *genre* photography indoors offers every freedom of choice to an operator possessed of fairly good taste. But for the every-day money-making business of the photographic gallery we are strong advocates of the plain background, at least for the great majority of sitters. Now, when we speak of the plain background we do not mean that the tint behind the figure in the finished picture is always to be left monotonous in color. The sitter and ground ought both to be so lighted that the shaded side of the ground relieves the lighted side of the face and *vice versa*. A great advantage of the concave form of background is that this relief forms of itself when the light comes slightly at angle, as it always ought to do. The concave background would be awkwardly large if employed for full-length portraits, but for heads, busts, and perhaps three-quarter-lengths, could easily be made available. It is obvious that in advocating the plain background we do so partly because there will then be nothing present to distract attention from the features of the sitter, as is too often the case with the so-called "landscape" backgrounds, and also because the ground, though plain, may be tastefully varied in its tints by a judicious lighting.

It would seem like a very trite remark to say that portrait photographers should never lose sight of the fact that the sitter's face and features are the principal objects of interest; but in looking over collections of portrait work we often doubt whether such a thought ever occurred to the operator. The recent introduction of backgrounds resembling pattern-work in relief is one of the forms of bad taste which would leave the public doubtful whether the photograph had been taken for the sake of showing the ground itself or the sitter. Backgrounds consisting of elaborate dadoes, or very high-backed chairs for single heads, are not less objectionable, the ornamental carving distracting attention from the head, and the detail in the hair being of much the same color as the woodwork, the general effect of the picture is very flat and poor.

Let us say, in concluding, that if ornamental backgrounds *must* be used, they will be less offensive to good taste when the picture is of small size.

THE LATEST THEORY OF PHOTOGRAPHIC DEVELOPMENT.

WONDERFUL DISCOVERY BY PROF. M. BOURRIQUE, OF THE MAISON D'ALIÉNÉS FRANCAIS.

FRANCE, at the present decade, seems to furnish the rest of the world with photographic surprises. Hardly has the excitement engendered by the Lippmann episode subsided, and the subject ceased to be one of discussion in the photographic periodicals, than we receive advices of a new theory of photography in natural colors, entirely different from anything which has been heretofore published.

This new theory, which, it is claimed, will revolutionize photography, originated with M. Bourrique, professor at the Maison d'Aliénés Francais, and is the outcome of a long series of experiments which have been conducted by the learned professor, under the closest veil of secrecy, for the last few years, at the private experimental laboratory in the celebrated institution with which the learned professor has so long been connected.

These experiments have been as carefully guarded from the eye of strangers as from the notice of the almost omnipresent newspaper correspondents, to prevent any premature announcement, as was the case with M. Lippman.

The government authorities, however, have been kept well informed of the progress of these experiments, and so important has this discovery been deemed, that, by order of the authorities, three gendarmes are always on duty in the corridor leading to the laboratory, to protect M. Bourrique from any intrusion or espionage. In fact, these precautions are almost similar to those taken in connection with the production of the new smokeless powder.

Fortunately, we have been able to secure from M. Bourrique a full and authentic account of this new theory and process, which is destined to completely revolutionize the whole field of photography, as we now understand it.

By what means or how great an outlay we have succeeded in obtaining this great secret, is a matter of which we are content to

remain silent. Suffice it to say we are now able to lay the whole matter before the readers of the AMERICAN JOURNAL OF PHOTOGRAPHY on the eve of the assembly of the annual convention of the Photographers' Association of America, and thus publish the whole discovery to the photographic public, amateur as well as professional.

1. M. Bourrique claims to have discovered the true theory or cause of light-impressions (*empreinte lumiere*), or photography, as we call it. He further claims that the reproduction of all images in the concentrated colors as seen upon the ground-glass is now but a question of very little time.

2. The foundation of this new process rests upon the discovery that all reduction in the various photographic processes is due to an infinitesimal microbe or bacilli, which exists, and lies dormant in the argentic haloid salts. After the latter is incorporated with the gelatine medium, which holds the salts in suspension, the molecules remain unchanged until the plate is exposed to the light, when the first change takes place, heretofore invisible to any known methods of observation, even the most powerful microscope failing to show any visible change.

Experiments by M. Bourrique with the new apo-chromatic biocular contact objectives of enormous power, of Zeiss of Jena, which show 120,000 lines of separated detail to the inch, however, clearly define the molecules in the exposed but undeveloped dry plate.

3. According to M. Bourrique, as the alkaline developer is poured over the plate the light-impregnated microbes are immediately excited into vitality, and grow and increase rapidly according to the action of the light upon the particular part of the plate; the stronger the light the greater the impregnation.

As these bacilli, which are naturally colorless, attain a certain stage of development the pyro, eikonogen, or iron commences to kill them, when they immediately turn black. This, according to M. Bourrique, is the true secret of photographic development.

4. We now come to M. Bourrique's greatest discovery,—viz., the utilization of his theory to produce a colored image. The learned professor proposes to generate these bacilli artificially;

this he has succeeded in doing, and he is now experimenting with the breeding of bacilli or microbes that will adapt themselves to any color, and develop in such colors to which they are exposed.

To attain this wonderful result M. Bourrigue has experimented with many reagents, however, without practical results, until he tried the peculiar secretion of the chameleon (*Chamelon vulgaris*). This proved successful beyond expectation, and proved the principle ; but as it had the effect of greatly retarding the plate, another medium was tried,—viz., the secretions of the larva of the *Papilio nireus*, but was abandoned on account of the strong proclivities to develop the green rays. The successful fluid was finally found in the nerve-tissues of a species of Cephalopods, which is capable of assimilating all shades of color.[1]

The only drawback so far has been the scarcity of this valuable fluid, on account of the difficulty of obtaining a sufficient number of these small and scarce animals, which are only to be found at the bottom of the Indian Ocean and the Persian Gulf.

The French government, however, has taken the matter in hand, and given orders that M. le Directeur de Maison d'Aliénés Francais send a party of his students, fully equipped, to one of the French islands in the Indian Ocean, after a supply of the animals, so that they may be acclimated and raised upon a large scale in the Jardin d'Aliénés, in Paris.

5. M. Bourrique's plan in detail is, first to subject the ordinary emulsion to a thorough sterilization, so as to absolutely kill all the ordinary bacilli and microbes contained in the argentic haloids, after which the mass is placed in a centrifugal pan revolving 20,000 turns per minute, by which all the sterilized molecules are expelled. The emulsion is then carefully washed in distilled water, and subjected to a temperature of 300° Fah., after which it is ready to receive the color-sensitive microbes.

The latter are cultivated in a vegetable gelatine from a Japanese plant, "agar-agar." This is boiled and mixed with beef tea, so

[1] The secret of the preparation of the fluid as a matter of course M. Bourrique carefully guards; with this single exception, the whole process is here given.—ED.

ADRIEN MONEAU PINX. GEO. F. LEWIS' SON

The Minuet.

PHOTOGRAVURE BY
GEO. F. LEWIS' SON & CO.

50-54 NORTH FOURTH STREET,
PHILADELPHIA.

as to form a soft, transparent solid.[1] A small quantity of this is put into a sterile test tube that is tightly corked with sterile cotton wool at the open end. This tube is then placed in an oven until all the germs in it, of whatever sort, are killed. Next the tube is briefly uncorked, and a long steel wire that has been heated to sterilize it is dipped in a similar tube containing the ordinary colorless microbes; this is then scraped across the surface of the gelatine. The tube is now uncorked, and allowed to stand for a few hours, at the end of which the bacilli have increased enormously; these are then impregnated or fed with the secretion obtained from the Cepholapods, which completely changes their character, after which the incubating operation is repeated in another tube of prepared gelatine, thus obtaining an entirely separate genera of microbes, which are impregnated with the peculiar property of the Cephalopodia; these are now ready for the prepared emulsion, in place of the ordinary variety destroyed.

M. Bourrique claims that the alkaline action of the developer, in connection with some of the new amido-napthaline derivatives, upon the plates thus sensitized or impregnated, will cause each molecule to adapt itself to the subjected exposure, and assume the exact concentrated shade of color to which it was exposed in the camera, thus reproducing the image exactly as it appears upon the ground-glass. The plates or prints, after exposure and development, are fixed in the usual manner.

If this process, which it is claimed has long since passed the experimental stage, proves practical, the greatest aim of photography shall have been accomplished. We expect to give some further information upon this subject in our next number.

J. Focus Snappschotte.

P. S.—In connection with this interesting subject we would not be surprised if priority of discovery would be claimed by the

[1] A.—Agar-agar, or Japanese isinglass . . . . . 10 grams.
Chloride sodium . . . . . 10 grams.
Aqua, distil. . . . . 900 cc.m.

Place in a beaker, dissolve over the flame, and boil twenty minutes. Strain and filter through hot filterer into a sterile flask plugged with sterile cotton wool.

B.—Aqua, distil. . . . . 100 cc.m.
Peptone . . . . . 10 grams.
Liebig's meat extract . . . . . 10 grams.

Dissolve over flame, add liquor potassæ till faintly alkaline, boil, filter, and add the filterate to above agar-agar solution. This is then boiled for half an hour, and is kept as the stock solution.

promulgator of the so-called "Verrak process," as has been the case on two previous occasions. Or perhaps word may come from the *Kurfürstliche-lichtbildnerische-fach-und-gewerb-austalt*, in Ochsendorf, that the whole matter had been ventilated by Herr v. Kansnicht ten years ago,—and this independent from the usual effusion from the old photographic veteran in this country, who will state that as far back as the daguerreotype days he knew that dropping a plate in a consommé from tree frogs would bring out the same results.—VALE.

PRELIMINARY, SECONDARY, AND SUPPLEMENTAL LIGHTING.[1]

BY DR. J. M. EDER.

THE following interesting paper is a translation from Dr. J. M. Eder's "New Exhaustive Handbook of Photography" (Part 2, Vol. I., pp. 313–320). The subject will, without doubt, be a revelation to the professional and amateur who knows nothing beyond the commercial dry plate of the present day. In days gone by the proceeding was technically known as "flashing." Our object in reproducing the article in its entirety is a two-fold one: first, to call the attention of our readers to the exhaustive nature of Dr. Eder's labors; and secondly, to recall the possibilities of this almost forgotten method of bringing out a negative which would otherwise be lost or valueless. In our own experience we have frequently resorted to this practice, and have rarely lost a plate. Whenever we find a plate undertimed or coming up too slowly, we simply pour off the developer and expose in the tray from two to ten seconds before the ruby glass, then again pour on the developer. In extreme cases we have repeated the operation as often as four times, and almost always with satisfactory results. Again, when we had reason to believe beforehand that we were undertimed, an exposure of two-thirds seconds in front of the ruby light before development proved of service. The former plan, however, is by far the safest.

[1] Read before the Philadelphia Photographic Society, June 10th, 1891, by Julius F. Sachse. For the discussion upon this paper see proceedings of the society, pp. 328, *Ibid.*

It is a proceeding, however, which requires care and judgment, and should not be resorted to unless all other manipulations of the developing agents fail to be effective. Still, in our own practice, the method as stated has proved successful with at least three makes of dry plates of varying degrees of rapidity.—J. F. SACHSE.

(*a*) *In the Negative Process.*—If a daguerreotype plate, wet collodion, or gelatine dry plate, after a short exposition in the camera, is subjected to an exposure of several seconds over the whole surface in a weak, diffused light, a favorable result will be attained.

If the exposure in the camera was gauged so short that the development resulted in an imperfect image, this supplemental general lighting continues the first action of the light so far that it results in a substantially better or perfect picture.

This action was first noticed over forty years ago with daguerreotype plates. *Becquerel* credited this continued action especially to the red and yellow rays, and denominated them as *continuing rays* (rayons continuateurs); while to the green, blue, and violet rays he attributed the primary cause of the action, and called them *creative rays* (rayons excitateurs).

This view was, however, soon found to be erroneous, and *Moser* was one of the first who recognized the fact that all the rays can commence and complete the action; later it was even proved that in actual practice it was just the subdued rays of the violet end of the spectrum which were the most active.

In the photographic practice, it has been repeatedly proposed to expose the plate in the camera for a shorter period than called for by ordinary conditions, and then subject the plate for a short time to a diffused light. This proceeding is called Secondary lighting.

A similar effect is attained if the plate is subjected to an exposure of a weak, diffused light before being placed in the camera (Preliminary lighting), or if weak, diffused light is introduced into the camera during exposure (Supplemental lighting).

In all three cases a reduction of period of exposure in chief is gained, frequently, however, at the expense of the quality of the

picture. The means therefore are manifold, and are described below.

As early as 1871 *Schultz-Sellack* declared that the "continuing" action of the light upon a weak image was not a peculiar phenomenon, but the result of the necessary primary action, which explanation contains the greatest probability.

I. *The Wet Collodon Process.*—The action of preliminary and secondary lighting upon the photographic wet collodion plates was discovered by *Bazin* in 1870. His plan was to introduce a red light on the plate either during, before, or after the exposition. This was done by aid of four openings in the front board of the camera, around the lens; these were protected with glass plates, coated with a solution of carmine in ammonia, which were placed in front of a piece of brown glass.

The opening or closing of the lens achieved the same effect upon the four supplemental apparatus.

The same effect was obtained when the plate was exposed to a red light, a second either before or after exposure.

Carey Lea, in landscape photography, caused the red light to strike the plate only where the sky did not reach. His plan was to secure a red medium (carmine-stained paper) on the upper part of the camera, so as to cause the darker portions, foliage, etc. (but not the sky) to be strengthened by the red light, and come out stronger in detail. When the foliage was brightly illuminated the red medium was unnecessary.

Newton applied an opening in the first board of the camera, 2x5 inches; this was covered with a green glass, so that the plate was flooded with a weak green light during the exposure. This is said to have reduced the time of exposure from twenty to five seconds.

Newton, however, concluded that the best and safest plan was to leave the plate in the camera, and then give a secondary exposure by taking a green, red, black, or gray medium in front of the lens, and thus reflect light upon the plate.

Others again exposed the wet plates one-third to one-fourth of the usual time; these introduced a piece of yellow glass in place

of the dark slide, and subjected the plate to an exposure of ninety seconds in diffused daylight (*Gaenslin*).

Colored papers (blue, green, brown) were also used for the same purpose, in front of the open lens immediately after the exposure (*Krüger*).

In the year 1887 the secondary lighting, by means of violet light was recommended. *Scotellari* made an opening in the cap of the lens; this he covered with aniline violet. This opening was opened or closed at will by a rotary disk. The plan was to expose with open lens as usual, only much shorter, then put on the cap and turn on the violet light to complete the exposure. This process reduced the time from fifteen to seven seconds; this was exclusive of the supplemental lighting of two seconds.

Gillard recommended these colored diaphrams not only for a reduction of the time of exposure, but on account of the peculiar mezzo-tint effects. He used diaphrams made of gelatine sheets, which were colored violet or dark green.

Frequently the Preliminary or Secondary Lightning was made by a white light. *Werge* used two thickness of tissue paper, giving four seconds.

Haugk suggested to expose a trifle less than half the usual time, then for a few seconds (say one-fifth of the usual time) to hold a piece of ground-glass before the lens, and then cap.

Melchion in portraiture exposed his wet collodion plates to a diffused light for two seconds by holding a ground-glass in front of the lens, and then made a normal exposure of eight seconds, the result being a plate equal to an exposure of fifteen seconds without any preliminary lightening.

Foxlee also was a strong advocate in favor of supplemental lightening with diffused white light.

It was further recommended to have an opening in the cap, covered with opal glass, this to be two-thirds the diameter of the lens; the preliminary lighting to be one-seventh of the normal, with the result of reducing the actual time of exposure from twenty-four to fourteen seconds.

Richard closed the opening in the cap with a thin piece of

tissue paper. The supplemental lightening should not exceed three-fifths of the normal time.

Wyler preferred to make the preliminary or supplemental lighting by candle-light in the dark room, as he had more control over the exposure than in the camera, His plan was to expose the wet plates for ten seconds to the candle-light.

Chapman subjected his astronomical plates to the influence of lamplight before he started development. This was also recommended by *Worthley*.

With under-exposed wet collodion plates *Prümm* found that the most practical supplemental exposure was to flood the plate with a yellow light in the dark room.

It is requisite with both fore- and after-exposures to take the greatest care that the light does not act too long, as this results in fog; while too short an action shows no improvement whatever. For instance, where an exposure under yellow glass of ten to fifteen seconds in diffused daylight already causes fogs (wet collodion plates), a ruby glass with five to ten seconds under the same conditions gives perfect results, whereas a combination of the ruby and yellow glass, even with lighted exposure, gave no noticeable effect whatever.

These additional exposures, notwithstanding the occasional results obtained, can only be depended on as a makeshift to save an under-exposed plate, as in almost every case fog results. Further, properly exposed plates are always preferable.

Quidde preferred the subsequent exposure.

A considerable reduction of the light is necessary with all the nodalities of additional lighting, so that the proceeding can be controlled. Therefore, translucent mediums can only be used when violet or white light is used. When green or yellow discs are used, more transparent mediums are available, thanks to the fact that the colors admit but few of the active rays. It will be noted that in all these processes the blue and violet rays are the most active, red carmine paper admitting even a few of these rays. Plain red or yellow glass proves ineffectual.

In this connection we will introduce the proposal made in 1850-'51 to use white for photographic purposes. This idea originated

with *Löscherer*, in Munich, who always operated with a camera the inside of which was white instead of black. He declared that thereby the action of the light was greatly increased.

Immediately after the publication of this statement *Blanquard-Eveard* stated that he obtained pictures in shorter time, when the interior of the camera was white instead of the usual black. This was substantiated by *Kilburn*, but denied by *Claudet*, or at least restricted to such cases where the outer light was not strong enough to form a strong image. Notwithstanding these experiments, they were again brought up by *Blair* twenty years later but, he soon returned to the dark camera and a preliminary exposure under red light.

Günther, in Hanover, 1855, suggested a modification in which he advised a blue lilac color in place of black.

As a matter of fact, some photographers (*Bellac* and others) actually reduced the time of exposeure with similar apparatus.

In the resulting discussion, in which *Horn* was especially active, it was soon shown that the reduction of time was at the expense of the picture, as the negatives were always flat. As a matter of of fact, neither the quantity nor intensity of light within the camera is under any control; and even if in some exceptional cases the requisite measure of supplementary lighting is attained, in the great majority of cases it results in failure.

Consequently this expedient is practically useless; it is far more unreliable than the previous processes.

Carey Lea condemned the white and red interiors of the camera. Especially with a strong light (landscapes, etc.), the bright high lights would spoil the whole view, and result in fog and flatness.

De Constant, who again investigated the matter in 1870, found that an entire white camera resulted in a flat picture, little relief, and a confused appearance, as if the plate had been wiped over.

If the top and bottom of the camera were black and the sides white, the resulting picture combined sharpness with softness and relief, especially on the part towards the black sides. If the bottom of the camera was black, it added to the clearness of the face. If the top of the camera was dark, the clothing was clearer.

Consequently, as the face in relation to the drapery usually has

too much light, better results were obtained when the top and sides were white and the bottom black.

As will be seen from all the above suggestions, no precise method has been evolved which could be adopted in regular practice.

II. *Primary and Secondary Lighting of Gelatine (Bromide of Silver) Dry Plates.*—Gelatine dry plates may also be improved during development if the necessary caution is used. It is perhaps superfluous to remark that with the greater sensitiveness of the gelatine dry plate it is much more difficult to gauge the correct time for supplemental lighting than with the wet collodion plate, and the difficulty of preventing fog is greatly enhanced.

With extra rapid dry plates the period of the primary action is so exceedingly short that even with a slight light-impression a developable image is obtainable, and even the shortest lighting causes a general reduction (fogging). On the contrary, on less sensitive, clear-working plates a marked effect is shown by additional lighting.

Candle-light can only be used for this purpose at a very great distance, or when greatly weakened. According to *Eder*, candle-light worked better when thrown through a ruby glass. His experiments showed that a slow dry plate of 15 Warnecke, after being exposed from two to six minutes immediately in front of a ruby lamp (candle-flame), the sensibility was raised to 19–20 Warnecke Sensometer, which was equal to a plate three times as sensitive.

E. Himly, in Berlin, patented a so-called (Hilfsbelichter) auxiliary exposer, which introduced diffused light into the camera (D. R. patent 38,684, Aug, 6, 1886); *vide* Eder's Year Book, 1889, p. 87.

Preliminary lighting with dry plates of high sensibility is partly unnecessary, partly dangerous, and therefore is not advisable in actual practice.

In all probability the same results obtained on gelatine dry plates, by auxiliary exposure may be reached in a purely chemical manner without the action of light. A minimum reduction of silver bromide must be introduced. This takes place by extend-

ing the so-called ripening process. In fact, the continuation of the digestion of the emulsion leads to fogging, and otherwise it is exceedingly dangerous to the rapidity of the emulsion, when treated with reagents, which are apt to change the reduced bromide (sub-bromide) back to its normal condition.

THE FAMILY PHOTOGRAPH ALBUM.

BY ROBERT J. BURDETTE.

"THIS," the young lady said, "is the photograph of a young gentleman who used to pay attention to Aunt Martha. He is a very nice young man. He was attending Letherhed College when this picture was taken."

And he was a nice young man. His collar wanders out over his shoulders, and his necktie looks like a roll of carpet with the ends fringed. His vest is a flowered pattern of velvet, cut low in the neck. His coat is a Prince Albert, and his legs hang down from the vast embrace of its encircling tails, making him look like a double-tongued bell. His trousers are broad, and he leans on a large book in a very painful attitude. His hair is combed low on his forehead and high at the temples, thus displaying the broad sweep and comprehensive scope of two ears that flare with the unfolding spread of intellectual development. His brow is contracted with thought and the intense effort to look fixedly at the impossible point indicated by the artist. The freckles on his nose do not show. They were kindly and carefully obliterated by the photographer, whose motto is: "Art, for art's sake," and who saw they were the only real and natural thing in the negative.

"And this," said the young lady, "is a photograph of Mrs. Thistlepod, an old friend of our friend. I think I have heard it said that pa liked her, indeed, before he met ma. It is not a very good photograph."

The young lady is correct. The execution is not a brilliant success. The bonnet, which is massive and of a multiflora style of decoration, is well outlined, and the massive bow of four-inch

ribbon with which it is tied under the chin is brought out in startling relief against the blank, oval-shaped space between it and the brow of the "bunnit," which is supposed to represent the placid features of "pa's" early flame. Crossed on her, in close focus, Mrs. Thistlepod's hands are magnified into the dimensions of small hams with fingers. This colossal effect is also rather emphasized by the too long fingers of the gloves. Mrs. Thistlepod is sitting so rigidly erect that you fear she has swallowed the head-rest by mistake, instead of leaning against it, as she was told. The deadly weapon lying in her lap is sometimes mistaken for a policeman's billy. It is Mrs. Thistlepod's fan.

"And here," the young lady went on, "is Mr. Thistlepod. He is a very kind-hearted man."

I was glad she told me so. Mrs. Thistlepod had made her husband's shirts under the impression that he was a rapidly growing boy instead of a man of 47 years, weighing already 172 pounds. The shirt boils and bubbles and wrinkles up out of his vest front. His collar stands up like the ear of a terrier on one side, but droops away in languid angularity on the other. His black necktie, after passing five times around his neck, is tied in a knot, the secret hitch of which is only acquired by long years of actual practice in tying old fashioned hame strings. The coat he wears is the awful coat of the Sabbath day and Fourth of July; and the set of the fearful and wonderful pantaloons, all taut on the larboard tack, betrays the solitary suspender in all its loneliness. One knotted knee is crossed above the other, and the suspended foot hangs out in the air like the coffin of Mahomet. His trousers crawl up the rigid legs of his boots. In one hand, with the arm still fixed in the frozen agony of the acute angle at which the "artist" set it, he holds a stovepipe hat with a level brim, with the intensity of a despairing man who will only loose his vise-like grip upon that hat with death. The other arm has been lashed across his body, and the extended fingers driven between his vest and coat with a sledge-hammer. You cannot see the tenpenny nails which pin this arm to its place, but you know they are there. Mr. Thistlepod's hair is combed straight

out from his head in both directions from any point of view. His lips are set, and his eyes glare with the pained expression of a man who has just been given the pleasant alternative of having his tooth pulled or the boil on the back of his neck lanced, as the only cure for the felon on his thumb. In all the agony of his face you can read murder in his heart, and the beholder is glad to have the pretty young lady's word for it, that Mr. Thistlepod is a kind-hearted man.

"And this," the young lady said, pitching her voice in a little lower key, while a faint color mantled her cheeks, "this is George Stevenson."

I knew by her voice and manner that George Stevenson was the most important man in that album, but her father came in just then to take me to the train, and I had only a brief glance at George Stevenson. His collar was very high and very wide-open at the throat, and his neck was very long. His curling hair curled as never hair curls outside of a country village. It climbed up on top of itself in billows of curls like pine shavings; it clustered over his brow in rings and hooks and scrolls, and not even the art of the all-disguising photographer could hide the glistening of the perfumed bear's oil wherewith those twining locks were anointed. His necktie was dark, dark blue with white polka-dots. His right hand rested on his hip; his left hand held his cane; his legs were crossed. The expression of his face was stern, as a man born to command men. His profession was clerk in a hide and leather store. His moustache curled up to meet his hair. A bouquet bloomed in the lapel of coat. The ring on his finger had a set as large as an acorn, and the pin in his scarf looked like a champagne cork. I glanced in through the sitting-room window as I drove away with her father, and the young lady was still looking with tender interest at the picture of George Stevenson.

In England, good success has been attained in photographing clouds by reflecting them from a surface of polished black glass, placed at a polarizing angle in front of the lens.

ARTISTIC CHROMO-PHOTOGRAPHY.[1]

BY DR. F. STOLZE.

THERE is a method for producing chromo-photographs which gives the most beautiful results, yet for some reason is rarely applied to practical use.[2]

This method is applicable to pigment pictures, as well as gelatine and collodion transfer or stripping films, of which the first gives the best results. For this process the pictures are developed on glass, which prior to collodionizing must be well cleaned with talc, and in case the collodion shows any inclination to frill the plate is edged with an india-rubber solution. Naturally the picture must be thin and soft. When the picture is dry the local tones are put on with covering colors. Moist colors are best, put on thick and pasty; the progress of the work can be watched through the glass. As soon as this appears completely harmonious the picture is then thoroughly dried, after which a piece of white paper covered with gelatine is squeegeed on the picture. The whole is then thoroughly dried, when the edges are cut and the whole stripped off the glass; the picture comes off with a high gloss. If a rough surface is desired the print can be covered with a piece of rough drawing paper or artists' canvas, and then passed through a burnisher; this gives the effect of an oil painting.

More simple still may the same result be obtained when the picture is first developed on transferrotype paper.

These pictures are without doubt the finest colored results to be obtained by aid of the photographic process, especially when the pigment print is thin and soft and the operator is a true artist.

With collodion and gelatine stripping films the process is very similar, but it is desirable to cover the collodion picture while wet with beaten albumen and water in equal parts; this prevents the colors from running.

It is surprising how little this process is practiced in Germany and elsewhere, as these pictures certainly would be appreciated by the public, and good prices result.

[1] Translated for the AMERICAN JOURNAL OF PHOTOGRAPHY.

[2] First published by Dr. Stolze in *Photo. Wochenblatt*, pp. 343, Berlin, 1885.

In France an exhibition was held, some time ago, composed of copies and paintings of old masters, made by this method. Some of these seemed so remarkable that even connoisseurs failed to tell the copy from the original.

It would afford us great pleasure if these few lines would draw renewed attention to this process, and cause its introduction into German studios. We would especially recommend the method as it combines the complete truthfulness of detail with the greatest brilliancy.

That the process is liable to many modifications is also in its favor. For instance, oil colors can be substituted for the water colors; but we do not recommend the change, as it is always a risk whether the oil colors are thoroughly dry, while the moist colors dry quickly, and can in addition to the collodion film be varnished to give an additional protection to the picture.

In regard to the durability of these pictures, the pigment films, which combine so well with the water colors, under all circumstances deserve the precedence, and the results may be put side by side of the best oil paintings, without disadvantage to the photographic reproduction.

It would be very encouraging if this process could supplant the widely distributed and often execrable photographs in oil colors.

If the actual portrait painters could be induced to interest themselves in this process, the success would be assured. Further, the rapidity with which the portraits could be finished is also in their favor, as the artist has merely to work in the local tones and reflex lights without any shadow tones, while the results are actual works of art, which would soon drive the present photographic colored abortions from the market.—*J. F. S., from Photographische Nachrichten, No. 21.*

Visitor (at lunatic asylum)—"I see you give your patients amateur photographs to amuse them."

Superintendent—"No; they bring them with them."—*New York Weekly.*

THE LATEST EXPERIMENTS IN COLOR PHOTOGRAPHY BY MR. F. E. IVES.

MR. FREDERIC E. IVES made an important communication at the stated meeting of the Franklin Institute last evening upon the subject of his process of color photography, in the course of which he explained and illustrated some recent improvements he had made in the means of operating the process, by which it is rendered comparatively simple and reliable, and capable of immediately profitable commercial operation for lantern illustration. When Mr. Ives first published his process, several years ago, the three negatives requisite were made in one camera, from one and the same point of view, but last night he showed that, by an improvement on his heliochromic camera, the three negatives, representing the effect of the object photographed upon the three fundamental color-sensations, are now not only made from one point of view, by simultaneous and equal exposure, as they were three years ago, but also upon a single sensitive plate; so that the heliochromic negative is obtained with no more trouble than an ordinary one, and any number can be made in which the relation of one element to the others is exactly the same. The color prints also can be made from these negatives by a single exposure in transparent gelatine, and separated only when ready to dip into the dye solutions representing the respective color-sensations. Mr. Ives showed, however, that it is not necessary to go to the trouble of making the color-prints when only lantern illustrations are required. Lantern positives, made from heliochromic negatives with no more trouble than ordinary lantern-slides were projected on the screen by the natural colors in the ordinary lantern, by means of a special front of Mr. Ives's own devising, and which was substituted for the ordinary projecting lens in about one second, so that an exhibition of ordinary lantern-slides can be interspersed with projections in natural colors without causing any delays in changing from one to the other.

Several such projections were shown, including some admirable views in the park, and they were received with prolonged applause. The approximation to the colors of nature were marvelously accurate. The positives were about one-third smaller than the ordinary projections, but were as sharply defined, and were in as bright and true colors as those produced two years ago with the more elaborate and troublesome lantern. The lantern front used for these new projections consisted of three prisms, converging light from a single condenser and

radient to three small projecting lenses, the necessary color-screens being located just behind the objectives. Mr. Ives also showed one of two cameras which he has devised to produce the heliochromic negatives, in which three negatives are made on a single plate, the image-forming rays being transmitted to the single gelatine dry plate through three reflecting prisms, and from points of view so close together (less than half an inch apart) as to make perfect registration easy of accomplishment. By the other camera the three negatives will be made from the same point of view. Mr. Ives also announced that he was at work on a scientific novelty in the form of an optical device for the table, in which these positives could be seen in the natural colors as readily as readily as stereoscopic views are seen in relief in the stereoscope.

Mr. John Carbutt said that he considered Mr. Ives's latest work by far the most important and valuable contribution to the difficult subject of photography in the colors of nature which had yet been made. He moved a vote of thanks to Mr. Ives, which was agreed to.—*Public Ledger, June 18th, 1891.*

Double-Albumenized Paper.—One of the leading manufacturers of photographic paper in Germany gives the following directions for obtaining the best results on double-albumenized paper, viz.:

A.—Silver Bath.

Nitrate of silver	100 grams.
Distilled water	1000 grams.

This bath must not have an acid reaction, and must be filtered before use, and stirred after sensitizing each sheet, which is to be floated from two three minutes.

B.—Toning Bath.

1.—Acetate of soda, double-fused	7.5	grams.
Acetate of soda, crystallized	7.5	grams.
Borax, pulverized	4	grams.
Distilled water	1000	grams.
2.—Chloride of gold sodium	1	gram.
Distilled water	50	grams.

Mix and filter Nos. 1 and 2 one hour before using.

C.—Fixing Bath.

Hyposulphite of soda	100 grams.
Distilled water	1000 grams.

FLEXIBLE PHOTOTYPE PLATES.

M. G. BALAGNEY, the French phototypist whose new plate was spoken of recently on our editorial page, states in his patent that he has also found, by simply treating with bichromate such flexible plates covered with an emulsion of bromide of silver, such as are supplied by the trade, that after the bichromate has been allowed to dry in a dark-room a perfect phototype is obtained, which may be used for the preparation of photographic negatives in lieu of the bichromated plates formerly used. A double impression is obtained by this novel method: first, that of the bichromated gelatine contained in gelatino-bromide of silver; and second, that of the bromide of silver itself. The result is a double impression, offering to the eye an admirably clear image, since the lines thereof are perfectly black. The flexibility of the support, moreover, enables the operator to follow in the frame the development of the image.

Mode of Preparation.—Upon any suitable flexible support, such as gelatine, collodion, celluloid, multiple films of collodion, india-rubber, guttapercha, dissolved in the usual solvents; in fact, upon any support prepared by the solution of gum or resin in essences, benzines, ether, or acids, is spread either a film of gelatine alone, or one of gelatino-bromide of silver, or any emulsion prepared with either gelatine, or dextrine, or gum, or starch, or albumen, or prepared with any organic body capable of producing an image after treatment with bichromates.

A film is thus obtained containing silver mixed with the organic substance upon which the bichromate is to exert its action. The films will be flexible and perfectly flat if prepared upon glass. They may be preserved in portfolios for occasional use, and when it is desired to employ them they may be cut to the required size and placed for a period of five minutes in a solution of three per cent. bichromate of potash. After being removed from the bath they are dried by means of a roller, and left in a dark room for the drying to be completed, for which purpose they are pinned by means of one or more ordinary pins to a small table or plate, so that the elaborate drying pro-

STREET AND CATHEDRAL, ORIZABA, MEXICO.

NEGATIVE BY WILLIAM H. RAU,
PHILADELPHIA, PA.

PHOTO PROCESS,
CROSSCUP & WEST ENGRAVING CO.,
PHILADA., PA.

cess in the special chamber is avoided. Phototype plates will thus be obtained which can be used instead of the bichromated slab for the impression of photographic positives. As usual, the exposure will be made in ordinary press-frames, without its being necessary to use the cumbersome and expensive apparatus now made use of in photographing. The image will form rapidly, inasmuch as the impression will be double and not single, as it is in the case of bichromated gelatine films.

The plate when ready is removed from the frame and placed in an ordinary water bath. The washing may be completed rapidly, and then the inking and printing can be directly proceeded with, after the plate has been placed upon the steel block or lithographic stone, or any rigid support that can be used as a substitute for a St. Gobain's slab, such as is now used to support bichromated gelatine. This rigid support may be of any desired description, provided it is not crushed by the cylinder of the press. Well-planed steel, in the inventor's opinion, is preferable for this purpose. To avoid altering the lever of the machine this block will be made of the same thickness as that of the ordinary St. Gobain's slabs. When thus the new flexible phototype plate is spread upon a suitable block, it can be in the usual way inked and printed from.

The flexible support may be composed of paper, cardboard, cellulosite, wood-veneer, parchment, ebonite, cloth, oil-cloth, leather, metal, or other suitable material, and the sensitized film may be separated from it by an intermediate layer of albumen, or some silicate productive of adhesion, for the purpose of preventing the film from blistering.

The flexible phototype may be stretched and fixed upon the printing-blocks, which may be steel, stone, marble, slate, or other suitable material, by means of gelatine, or other adhesive substance, such as dextrine, albumen, and the like. For this purpose I cover the steel, stone, zinc, or like block, with a layer or film of water. Upon this liquid layer I place a perfectly smooth sheet of gelatine. I remove the bubbles and water from between the gelatine and the surface of the block by means of a roller. The atmospheric pressure then comes into action and causes the

gelatine to adhere to the block. In a second similar operation, and by spreading water over the surface of the sheet of gelatine adhering to the steel, the phototype film is caused to adhere to the gelatine, such adhesion being most powerful in this case, also, owing to the atmospheric pressure. The moisture is then wiped off, and ink is applied to the film.

This process is intimately connected with a phototype process that the same inventor has devised, and which, being mainly a printing process, naturally includes the means of stretching the gelatine printing surface. Such a method of stretching is capable of being extended to any printing process.—*Paper and Press.*

THE IGNIS FATUUS OF PHOTOGRAPHY.[1]

BY F. ADOLPHÉ.

IN a foreign periodical we find the following paper. It was, without doubt, written under the inspiration engendered by the announcement of the Lippmann discovery. We reproduce the article, more as a matter of curiosity than for its intrinsic value. As will be noticed, the writer classes photography in colors side by side with the physical phantasms which have occupied the minds of philosophers and students as far back as the misty years of the middle ages.

During the last month a discovery has been announced which, if true, would assure untold millions to the coffers of the perfector; for the discovery of color photography is included within the half-dozen schemes insuring untold wealth, schemes after which the scientists of the present day are as earnestly striving as did the alchemists of old after the *lapis philosophorum.* Our scientists of to-day, indeed, no longer seek after the elixir of life, which was to insure the fortunate possessor human beauty and unchanging youth for untold years, nor do they worry themselves about the discovery of the magic mantle which makes its owner invisible. The production or transmutation of gold, however, is still on the program, even if it is not openly practiced or acknowledged.

[1] Translated for the AMERICAN JOURNAL OF PHOTOGRAPHY.

In view of the fact that the indications are increasing from day to day that the present elements do not represent the highest degree of chemical and physical knowledge, should proof be produced that gold is a composite substance its artifical production would be but a question of time.

Almost all scientists and chemists seek to discover specialties whereby their results would be at once transmuted into gold without measure or limit. Among the specialties so earnestly sought for we find: 1. The artificial production of the diamond from carbon, which means the crystallization of carbon. 2. A prevention or cure for epilepsy and consumption. 3. The complete combustion of coal, of which at present but five per cent. is available. 4. Photography in natural colors. 5. The direct utilization of solar heat, and the ebb and flood. 6. The production of "attar of roses" from some worthless substances; and others of similar import. The above are all problems which may be solved within the next century, and are not to be classed among the phantasmagoria, such as perpetual motion or the conversion of moonbeams into "Brussels point lace."

In the past decades accident in most cases led to most important discoveries, as is instanced in the case of gunpowder, porcelain, etc. At the present, time, however, the great epoch-making discoveries rest upon the intelligent application of the already well-known natural laws.

Thus it is with the latest great discovery of photography in natural colors, which proves to be the optical counterpart of the acoustic phonograph.

Both depend upon the intelligent application of exact physical principles. As on the phonograph the sound-waves impress themselves upon the soft coating of the cylinder, so waves of light-intensity impress themselves upon the sensitive coating of the prepared plate in the camera, and, according to the new discovery, are capable of reproduction in their original form similar to the sound-waves in the phonograph.

In principle and theory this long-sought-for problem has at last been solved; and now it only remains for the inventor to perfect his discovery, so as to adapt it to every-day practice, and reap his untold millions.

"The Star Spangled Banner."

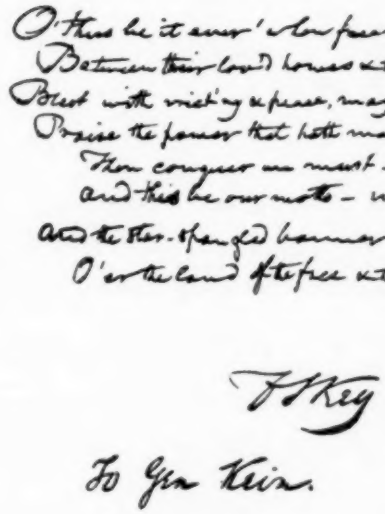
O say can you see by the dawn's early light
What so proudly we hailed at the twilight's last gleaming,
Whose broad stripes and bright stars through the clouds of the fight,
O'er the ramparts we watched were so gallantly streaming?
And the rocket's red glare – the bomb bursting in air
Gave proof through the night that our flag was still there?
O say, does that Star-spangled banner yet wave
O'er the Land of the free & the home of the brave? –

On that shore, dimly seen through the mists of the deep,
Where the foe's haughty host in dread silence reposes,
What is that, which the breeze, o'er the towering steep
As it fitfully blows, half conceals, half discloses?
Now it catches the gleam – of the morning's first beam,
In full glory reflected, now shines on the stream,
'Tis the Star-spangled banner – O long may it wave
O'er the Land of the free & the home of the brave!

And where are the foes that so vauntingly swore
That the havoc of war & the battle's confusion
A home and a Country should leave us no more?
Their blood has washed out their foul footsteps pollution.
No refuge could save – the hireling & Slave
From the terror of flight, or the gloom of the grave,
And the Star-spangled banner in triumph doth wave
O'er the Land of the free & the home of the brave.

FSB

Photographed from original, in possession of Historical Society of Pennsylvania.



As the month of July is always more or less associated in our minds with the glorious Fourth and the usual outbursts of patriotism, we present to our readers a fac-simile copy of the "Star Spangled Banner," in the hand-writing of the author, Francis Scott Key, Esq. This copy was made shortly after the song was written for General George M. Keim, a prominent citizen of Reading, Pa., and in after years was presented by his children to the Historical Society of Pennsylvania, where it now reposes among other priceless relics of our nation's history.

Yonkers Photographic Club.—We are in receipt of the souvenir catalogue of the third annual exhibition of the Yonkers Photographic Club, June 8–15, 1891, The half-tone illustrations are especially fine. We mention, as of especial merit, "Harvesting," by F. W. R. Eschman; "Caught Napping," by John W. Alexander; "Spring Furrows," by George B. Ritter; "Cocoanut Grove," by George B. Wray. The souvenir was printed by the Giles Company, and does credit to all concerned.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, June 10th, 1891, the president, Mr. John G. Bullock, in the chair.

The Board of Directors reported the election of the following active members: Howard Laurence Roberts, Thomas Lynch Montgomery, and Benjamin Sharp. They also announced that a plan was under consideration, details of which would be given later, for a competitive exhibition, to be held during the coming fall or winter, of lantern slides from hand-camera negatives representing the summer work of members of the society.

Mr. J. F. Sachse read a paper on "The Preliminary, Secondary, and Supplemental Lighting of the Photographic Plate."[1]

At the conclusion of the reading, Mr. Carbutt inquired on what date the first colored diaphragm was used in the lens.

Mr. Sachse said he did not know the date, but it was first used by Guillard.

Mr. Carbutt stated that he had used a colored diaphragm in 1858 or 1859. He was then working in a small gallery in a small way, in an interior town in Indiana. They were using the wet collodion process at that time. He used a blue diaphragm, and obtained a sharp picture in about the same time that would have been required by a very much larger aperture.

Mr. Bell said that in 1872 the photographer of the Treasury Department and himself instituted a series of experiments in preliminary lighting. The plate was exposed from three to five seconds with a red glass in front of the lens, and then exposed on the sitter. The result in all cases was less valuable than if they had not exposed to the red light at all, but had given it proper time. It might be useful where a man's chemicals were in a very insensitive condition, as it would help him to make a much better picture than he could otherwise obtain. He had also used the blue light, by apertures in front of the box, and again in the cap, and after exposure swung in front of a white screen for an instant. At that time he had slow light, and this method helped him very much to get certain pictures, such as children. Still, the results were never very good,—not as perfect as would have been the case had he been able to expose the proper time.

The chairman inquired which color gave the best results, the blue or the red?

[1] *Vide* pp. 308 *et seq.*

Mr. Bell replied that in the preliminary lighting he found the red glass was the best.

Mr. Cheyney said that it seemed to him they all used this preliminary, etc., lighting. While it was not intentional, they all did exactly what Mr. Sachse had described. In the first place, they took out their plates in a dark room lighted by red light, dusted them, and inserted them in the holders. That was the preliminary lighting. Then they exposed the plates. That was the secondary stage. Next they developed under the red light, and if the development did not proceed fast enough they held the plate up close to the red light to see what was the matter. That was the supplemental lighting. Hence, they all did what Mr. Sachse had described.

In reply to a question from the chairman, Mr. Sachse said the red light employed was merely the ordinary red light of the lantern.

The chairman asked where, then, lay the difference between this red light and that used in ordinary development.

Mr. Sachse stated that it differed in this respect, that he personally always filled his holders in the dark. Then, after exposure, he never subjected the plates directly to the red light of the developing room but put them in the pan in the shadow, and, after a few minutes, held them to the red light to see if the image had appeared. He was always very careful to keep away where the exposure was normal.

Mr. McCollin said he recollected one of the members, Mr. Browne, in the old collodion-emulsion days, brought to him some undeveloped plates; and they were made into fairly good plates by means of candle-light. They were developed in a yellow glass dish.

Mr. Cheyney explained the test he made of his lantern. He exposed a 26 Seeds plate before the lantern for five minutes with a figure cut from cardboard in front of it, and could get no image,—the plate was perfectly clear. So he came to the conclusion that he was quite safe in taking his time in development.

Mr. Sachse remarked that he found a difference in the makes of plates. In one make of plates exposure to the lantern invariably resulted in fog. Two other makes he was in the habit of using always came out clear.

The secretary inquired if this was really an improvement, or only a slight veiling which, as Mr. Carbutt said, made certain details apparent or softened down the hardness of an under-exposed plate.

Mr. Sachse's experience had been that it did bring out detail. In speaking of the matter three years ago with a professional photographer, that gentleman attributed the improvement to pouring off the developer

and leaving the plate exposed to the action of the air. He contended the ruby light had nothing to do with it, and said that when he found under-exposed plates he poured off the developer, exposed to the air, and then put them in the developer again.

The secretary said it seemed to him that plates grew in detail while being examined, as though the air, coming in contact with the plate, might have that effect.

Mr. Walmsley supposed every one working with a developer had experienced that. His own developer he kept on the plate only long enough to bring out the detail slightly; he then poured it off, put a cover over it, and it would bring out a density in a few minutes so dark that they could not see through it.

Mr. Ives stated that more density would be developed where the air came in contact with the plate than where it was kept from it.

Mr. Cheyney mentioned an instance where he had allowed the negative to rest on the edge of the dish, and the part exposed to the air was better developed than the portion immersed in the developer. In fixing, also, he had found that where the process was slow it was quickened by taking the plate out and letting it stand on edge a little while before returning to the bath. There seemed to be some oxidizing action of the air that helped development and fixing along.

Mr. Fox said that in the collodion-emulsion days, when they worked with yellow light, it was a common dodge to pour the developer off the plate and let it stand for some time. The negative would come up very well in that way; it brought the detail out rapidly.

Mr. Stirling said it had been suggested that part of the action or the benefit brought about by breathing on the plate was due to the added heat; but he wished to ask for some information. What Mr. Cheyney had said about his developing lamp was at variance with his experience. He had never handled any plate that he could expose within five inches of any lamp he had ever seen without developing fog. He thought it would be interesting to all present if Mr. Cheyney would tell what lamp and what colored medium he used.

Mr. Cheyney stated that his lamp was a Carbutt's Multum in Parvo. It had a face of ruby-colored, hammered glass in front of it. This he had the misfortune to break, so he took two pieces of Carbutt's yellow paper, and pasted a piece on one side and one on the other, and he could stand a Seeds 26 plate in front of it, with a figure against it, for five minutes, and nothing but clear glass could be gotten out of it.

Responding to a remark from Mr. Stirling, Mr. Cheyney said he

was never more than eighteen inches or two feet away from the lantern, and he could see the details come up, and he had not very good eyes.

Mr. Stirling hinted that as Mr. Cheyney wore glasses he could probably see better than he (Mr. Stirling) could.

This Mr. Cheyney denied, and, continuing, said that when he desired to tell the density he always examined the plate by the clear, red glass in the door of the lantern.

Mr. Bell spoke in favor of the sodium core or "Alladin" lamp used by Mr. Rau. He advocated plenty of light in order to distinguish the density of the plate.

Mr. Rau, in answer to a question, said the sodium core gave a very pale orange light.

Mr. Sachse inquired whether any of the members present had ever had experience with the white or colored camera interior.

Mr. Bell said that in the old daguerreotype times they had used something like that, but it was abandoned, mostly for the reasons given in Mr. Sachse's paper. The images obtained were very indifferent.

Mr. Ives thought it would be of interest to the members to know that in the old wet-plate days a secret method was sold to photographers, for $10.00, which consisted of a lighted wax match, to be held until burned out,—a very convenient way for supplemental lighting.

Adjourned. ROBERT S. REDFIELD, *Secretary.*

Uniform Weights and Measures.—By advices from London we learn that at the late photographic convention Mr. C. J. Haussen, a civil engineer of Copenhagen, made the following interesting and ingenious proposition to attain a uniform standard at this meeting. Considerable doubt was expressed as to the possibility of practically bringing into use the metric system with all its objectionable along with its elegant features. Mr. Haussen proposes that the English foot should be increased in length by about the one-twenty-five-hundredth part of its present length (from 1 to 1.00043), the pound avoirdupois, the ounce, the imperial gallon remaining unaltered. The cubic foot, as Mr. Haussen states, would then contain exactly one thousand ounces of distilled water, not four degrees Centigrade, and its intercomparison with the metric unit of weight, length, and volume would become apparently easy.

Editorial Notices.

The photographer who makes his visitors or callers comfortable and feel at home, while they are in his establishment, makes more negatives, takes larger orders for prints, and does more business in a month than the old fossil does in a year who continues to travel upon his reputation of twenty years ago, and who chills the stranger who by accident enters his establishment by informing him that he caters to none but the exclusives of society, but will condescend to give him a sitting.

Mr. John Carbutt, the well-known dry plate maker, sends a circular to all dealers in photographic materials, and photographers in general, stating that for the past twelve years he has manufactured and sold photographic dry plates bearing on their labels the letters A and B, which have become distinctive and recognized brands of his manufacture, so that the use of the letters A and B had by ordinary usage become to him a valuable trade-mark, and photographers ordering his plates of those brands usually deemed it unnecessary to do more than mention the brand required by those letters without attaching any name to the same. Recently certain dry plate makers have made use of the same letters A and B on their labels, and as the United States Patent Office has granted Mr. Carbutt the exclusive use of the the letters A and B as a trade-mark, when applied to photographic dry plates, he hereby gives notice that he intends to maintain his exclusive right to the trade-marks A and B, as applied to dry plates, and will cause proceeding to be taken against person any or firm who infringes upon his rights.

Mr. C. R. Pancoast, editor of the photographic department of the Connecticut *Guardsman,* gives notice in the current number that, owing to a change in business and consequent removal from Waterbury, he will with this issue sever his connection with the *Guardsman* in the capacity of photographic editor. While he does so with sincere regret, he feels sure that this successor will not only carry on the work on the plan originally suggested, but will materially improve on it, and give those of the subscribers who are photographically inclined the benefit of an enlarged experience. He wishes at this time to thank the publishers for their uniformly kind and courteous treatment, as well as his brother editors for their generous words of encouragement which they have accorded his humble efforts in journalism. We understand his successor will be our colaborateur, Dr. Ellerslie Wallace.

New Orleans Camera Club.—We are in receipt of a cellagraph, by S. L. Mitchel, showing the interior of the meeting-room of the New Orleans Camera Club. We congratulate the club on its comfortable quarters in the Crescent City.

Our esteemed British namesake, in a late issue (May 29, 1891), as a matter of news brings to the notice of its readers a quotation from the *Revue Scientifique*, in which the claim is set forth that photography in colors was described one hundred and thirty years ago. The whole matter is nothing more than a quotation from "Gypanthia," which, our readers will recollect, was presented to them in fac-simile of the original (Vol. XI., pp. 121–127) from copy in our own library. Our British contemporary falls into an error when it states that M. de Rochas (?) proposes three problems to the physicists of our day, and submits to their discernment. They were proposed to the naturalists of the day in which M. Chas. Tiphaigne de la Roche flourished,—viz., 1760. A reference to the AMERICAN JOURNAL OF PHOTOGRAPHY, Vol. XI., would have set our esteemed confrère straight, and avoided the above misleading statement.

The Bausch & Lomb Optical Company, at Rochester, New York, issue an address to the amateur photographers of America, in which they state that in order to further the interests and elevate the art of amateur photography, and for the purpose of encouraging American industry connected with this branch of science, they propose to arrange a prize contest, to be participated in by all amateur societies in this country, provided that a sufficient number of members in each society will compete, and they submit the following plan for consideration.

They propose to furnish to each society, according to its preference, either a Bausch & Lomb Optical Company 6½x8½ Rapid Universal Lens with diaphragm shutter, or Bausch & Lomb Optical Company 6½x8½ Alvan G. Clark Lens with diaphragm shutter. Same to be used by each contestant for taking the competing photograph. This lens and shutter is to be awarded as a prize to the member of each respective society producing the best results in instantaneous photography.

They also propose to offer a prize of $200, a second prize of $125, a third prize of $75, a fourth prize of $50, to the four members of competing societies who of all the contestants produce respectively the best four samples of work in instantaneous photography.

We expect to furnish to our readers the results of this contest as soon as received.

A contemporary states, as a matter of news, that Mr. F. E. Ives, the well-known photo. student and scientist of Philadelphia, has recommended a certain brand of dry plates for orthochromatic work in the studio, after flowing the plate with an alcholic solution of erythrosine. We would ask our venerable contemporary if he is not a little behind the times in the matter, as, if we err not, Mr. Ives has abandoned the use of that special make of plates for four or five years.

Mr. W. H. Jackson, the well-known landscape photographer of Denver, has recently made a change in his firm by placing the business on a corporate basis. Messrs. Chain and Hardy, the former partners in the firm of W. H. Jackson & Co., have been bought out, and the W. H. Jackson Photograph & Publishing Company, a close corporation, has been formed with a fully paid-up capital of $30,000. Mr. Jackson has recently returned from a tour through Mexico, where he made about 600 negatives of the best scenery Mexico affords, and of the most interesting characteristic Mexican views, which he pronounces quite equal to the grandest and best in the Rocky Mountains. The new company propose to extend their view business quite materially, and Mr. Jackson's excellent work will soon be on sale in all the principal cities of the country.

The Metric System.—Professor William H. Seaman, M.D., of Washington, D.C., writes us:

There are some things in your last number that seem to me worth noting, even though they are small matters.

First of all, Captain Abney's article on an international standard of weights and measures. There is no doubt about the prejudice of the English people. It is not so very long ago that one of their most prominent scientific men argued that the Almighty made a great mistake in putting ten digits on our two hands; it would have been much better to have had only eight, because they would then be capable of binary division, you see. I trust our prejudices are not so strong, for twelve out of the sixteen formulæ in this number are metric. Now, look at Miethe's formula, on page 251. It shows at once that it contains one per cent. of the active developer, and that it is the solution actually applied to the plates. It can easily be compared with page 275, which is two per cent. stronger. But the numbers of the same denomination are not under each other on page 252, in carbonate of potash and pyro, centigrams are under grams. The decimal point should always be on the right of the grams, as on page 276.

Photographic Hints and Formulæ.

Another Brand-New Developer.—M. René La Corte-Deplé-réer, in the *Bulletin Belge*, promulgates another new developer, "ixol." Crystallized ixol is a chemical novelty. The formulæ states, viz.:

A.—Crystallized ixol	5 grams.
Distilled water	100 c.cm.
B.—Caustic soda	2.5 grams.
Distilled water	100 c.cm.

(*a*) First method: For a time-exposure, place the exposed plate in solution A for two minutes. For instantaneous exposures, from four to six minutes, and then remove, without washing, into solution B. The image comes up very rapidly.

(*b*) Second method: Place the exposed plate—if time, one minute; if drop-shutter, two minutes—in solution B; then add a few drops of solution A while rocking the tray. If image does not appear in a few seconds add a few more drops of A.

(*c*) Third method: Combine A and B, then use as one solution. Action very energetic.

This new developer is also put on the market in the shape of cut sheets of paper,—viz., ixol paper and lux paper, with which even instantaneous exposures may be developed.

A piece of ixol paper is placed in a tray, then the plate to be developed; enough water is then poured on to cover the plate; the tray is then rocked for three to four minutes. Both ixol paper and plate are then taken out of the tray, and a piece of lux paper is placed in the tray; the plate and ixol paper is then replaced and rocked until the development is complete. The plate is fixed in:

Hypo	25 grams.
Bisulphite of soda	5 grams.
Water	100 grams.

Both solutions as well as the developing papers are permanent. The solutions can be returned to the bottle, and used until completely oxidized.

To Blacken Copper.—Two formulæ to blacken copper: Scrape the metal well, and put into the following solution:

Non-concentrated sulphuric acid	4 parts.
Nitric acid	2 parts.

Rinse then in pure water and oil.

No. 2.—Dissolve in a litre of water:

Hysulphite of soda	0.60
Acetate of lead	0.20

Scrape the object in acidulated water, and soak it in the above solution, having kept it bright. The copper takes successively the gray, red, violet, and at last blue-black coloring. After washing and drying, cover with a very transparent varnish, which intensifies and preserves the coloring. This process has the advantage of being very cheap, and does not disengage any sulphurous orders.—*L'Amateur Photographe.*

G. Cramer gives the following formula for a fixing bath in connection with his direction for working the Cramer lightning plates:

Fixing Bath.—After developing and rinsing, the negatives may be fixed in a plain hypo bath, one part hyposulphite of soda to four parts of water; but the following formula is especially recommended:

Water	1 liter.
Sulphite of sodium crystals	120 grams.

After being dissolved add

Sulphuric acid	15 c.cm.
Chrome alum, powdered	90 grams.

Dissolve and pour this into a solution of

Hyposulphite of soda	1 kilo.
Water	3 liters.

This bath combines the following advantages: It remains clear after frequent use; it does not discolor the negatives, and forms no precipitate upon them. It also hardens the gelatine to such a degree that the negatives can be washed in warm water, provided they have been left in the bath a sufficient time. The plate should be allowed to remain in the bath five to ten minutes after the bromide of silver appears to have been dissolved. The permanency of the negative and freedom from stain, as well as the hardening of the film, depends upon this. Wooden boxes, with grooves to hold a number of plates, will be found both convenient and economical for fixing. When the bath becomes weakened by constant use it should be replaced by a fresh solution. If the development is in harmony with the exposure, the negative will not need any intensifying or reducing.

How to Skeletonize Leaves.[1]—The leaves chosen must be quite perfect, and not too young, or gathered too late in the season. Rain-water is best for the soaking process; expose the tub to the sun, and replenish the water as required. Place the leaves in the water, and let them remain until partially decayed, until the skin becomes decomposed; but remove them before the fibrous veins of the leaves are attacked. The time usually needed to carry the process of decomposition to the right point is about a fortnight, after which they should be examined twice a week, or daily if the weather is warm. When thoroughly soft and pulpy, remove them to a basin of clean water. They will look like a mass of filth, and the stench will be unbearable. They will be too tender to touch with the hand, and must be lifted gently on cards into the clean water. Have two brushes at hand, an old toothbrush and one of camel's-hair, soft, but thick as a pencil. Having lifted a leaf out of the water on a card, brush tenderly with the soft brush until the whole of the skin is removed, then dip in water, and having reversed the leaf under the water, repeat the process on the other side. If the skeleton is not by this time quite clear of the pulpy matter, use the tooth-brush; not with a sweeping motion, but with a few gentle taps. Give the skeleton another washing in clear water in the same way as before; then immerse it in the bleaching solution, made by pouring water on chloride of lime, and pouring off the clear water when the sediment has quite settled. Delicate leaves, such as the ivy, will be thoroughly bleached in a couple of hours, but others take longer. They will be spoiled if allowed to remain too long. Then immerse in several clean waters, and leave for half an hour in the last. After this, float the skeleton on a card, in as natural a position as possible, and drain preparatory to the drying, which should follow quickly. An oven not too hot is best. The skeletons will now be strong enough to bear delicate handling. Leaves like the oak, which contain tannin, resist decomposition, and are unmanageable. The best leaves for skeletonizing are those of the ivy, holly, laurel, lime, maple, pear, orange, lemon, walnut, willow, chestnut, white hawthorne, and vine. The petals of the hydrangea are excellent for the purpose, the roots of the hemlock, the calyx of winter cherry, the seed-vessels of the thorn-apple, henbane, canterbury-bell, and columbine.

[1] Published in compliance with two requests from lady amateur subscribers, one of whom wishes to use the skeletonized leaves for photographic purposes.

Photographic Scissors and Paste.

Edison's Latest.—From the laboratory of the Wizard of Menlo Park there is coming an invention which out-Edisons Edison. It is the marriage of the phonograph with the camera,—the union in one instrument of sound and sight. With it the opera can be carried into the parlor, and the artists cannot only be heard, but seen. The popular preacher, the eminent public speaker, with it can all be brought to the home. The new wonder will be called the "kinetograph," a strange-sounding title to the ear to-day, but destined perhaps soon to become as familiar as locomotive or telephone, both strange words in their infancy. Mr. Edison has been at work on this newest conception of his genius for three years. Now he knows that its base principle is right, all that remains to be done is to perfect the details. The new invention is a combination machine, in which the phonograph and the photographic camera work together. It will reproduce not only sound, but also a picture of what passes before it,—not a mere instantaneous impression of objects, but a continuous representation of them for a considerable space of time. Mr. Edison claims it will reproduce an opera. The phonograph will render the music, and the photographic apparatus will reproduce the performers so that their presence on the stage will be depicted, every muscle of their faces will be seen to work, their strides, movements, all will be true to nature.—*Philadelphia Daily News.*

The Terrible Camera.—The day cannot be far distant when it will become necessary for the law-makers of the land to legislate against the camera upon the same lines and upon the same principle that it has already been found necessary to legislate against the carrying of concealed weapons. There is always a theory that the general good sense of the community will regulate these things, and very likely in the long run the good sense of the community—or the indifference of the community, which comes to the same thing, by allowing a thing to slip out of sight altogether—fulfills the function thus optimistically allotted to it; but in the meantime the irritation of the nuisance demands some more speedy and drastic remedy.

It is the opinion of the editor, reached after a careful study of the situation, and a temperate and dispassionate review thereof, that for an amateur to be found going about with an ordinary camera should be made a misdemeanor punishable by confiscation of the instrument and

SPECIMEN OF LINE WORK ON
HARD ROLLED COPPER.
PHILADELPHIA PHOTO-ELECTRO. CO.,
[illegible] FILBERT STREET, PHILA.

a fine to be regulated according to circumstances. To be found with a detective camera should in an amateur be punished by imprisonment for life; in a professional, by instant death. Could these precise but mild laws be passed and rigidly enforced, there would be a very notable change in the comfort and in the moral tone of the community. It is impossible that there should be any high average of ethical feeling in the land as long as the camera fiend is daily and hourly allowed to trample upon every feeling of individual liberty and freedom; and unless something is done to check this rapidly growing evil, who knows whether civilization will be able even to last out the century?—*Boston Courier.*

A New Camera Club.—A new club of amateur photographers was recently organized under the name of the Capital Camera Club. It is composed of a number of well-known amateurs, and its quarters are in the building northeast corner of Seventh and D Streets, where the club has four rooms, including an excellent gallery light and a well-appointed dark room. The officers elected for the first year are: Mr. Albert Le Breton, president; Mr. George W. Choate, vice president; Mr. Frank B. Dante, secretary-treasurer; and these members, together with Mr. J. E. Mitchell and Mr. A. L. Moore, constitute the board of directors.—*Washington (D.C.) Star.*

The Cereus in Its Glory.—We are in receipt of a communication and a series of photographs from B. Grant, Esq., a resident of the island of St. Helena. The photographs represent a species of the night-blooming Cereus (*Cereus triangularis*) in all of its native glory. On that rock-bound island in the far-off South Atlantic this species of Cereus is utilized for hedges and arbor screens, and without doubt forms a perfect barrier, and with their great wealth of bloom must form a magnificent picture. One of the views sent was taken in February, 1890, at seven o'clock in the morning, in murky, dull weather; this plate shows thirty-two flowers in full bloom. The other plate, showing twenty flowers in full bloom, Mr. Grant writes us, was taken February, 1891, in the early morning, when it was raining and a strong southeast trade wind blowing. The other plates show the magnificent flower and bud in detail. Independent of their scientific value these prints reflect great credit on Mr. Grant as a photographer. It is but another instance how widespread is the interest taken in photography when such excellent results come from a wave-washed rock in the southern ocean, 1,200 miles from the nearest land. We trust at some future day to bring one of the above plates before our readers.

Our Illustrations.

Our Frontispiece.—We are particularly fortunate in being able to present our subscribers with a portrait study from the gallery of Harrison Krips, 1500 Columbia Avenue, Philadelphia. We use for this illustration a series of negatives from the above gallery, as it requires from twelve to twenty negatives to get out our edition on time, and even then we are often hampered if a few dull days come in succession. However, it matters not which picture you get in your JOURNAL, as they are all of equal excellence. Mr. Krips is perhaps the best-known photographer in northwestern Philadelphia. His galleries for luxury and appointments are second to none, and his results may be judged by the sample here submitted.

"The Minuet," by Adrien Moreau, a photogravure of a prize picture of the Paris Salon, by the Philadelphia Photogravure Company,—George F. Lewis's Son & Co., 50–54 North Fourth Street, Philadelphia,—is another illustration of the great part photography is taking in the fine arts. Equal, if not superior, to the finest steel engraving or etching on copper, photogravure is fast forging its way to the front for fine book illustrations. Some of the finest subscription art works have of late been illustrated with this process by the Photogravure Company of Philadelphia. For a specimen of their portrait work we refer our subscribers to the March number of the present volume.

Orizaba, the pearl of Mexico, the sparkling jewel in its emerald setting at the foot of the mountain from which it takes its name, situated four thousand feet about the sea level, is more moderate in temperature than the other Mexican cities, and consequently is as pleasant a resort in winter as a retreat in summer. Our picture, a street and cathedral in Orizaba, gives the spectator an idea of the indifference paid to time in Mexico. The ruined wall in the distance has been in that condition for years, and will probably remain so for years to come, unless it falls down. The old wall to the left incloses a magnificent flower garden, owned by a gentleman who lives but for his flowers and birds. The negative is one of many hundreds of similar subjects made by William H. Rau, the well-known Philadelphia photographer. The half-tone reproduction is by the Ives process of the Crosscup & West Engraving Company, 911 Filbert Street, Philadelphia.

"The Star Spangled Banner" is a "direct" reproduction from negative on to zinc plate,—another application of photography to commercial art, which has lately come into general use.

Our Direct Reproduction.—We also present our readers with a specimen of direct line etching on hard-rolled copper, a process applicable for book illustrations, bonds, bank checks, and commercial work of a similar character. The process gives results far superior to the old gelatine process, in which the lines are but too apt to thicken or be broken in the electrotype process; in fact, it has been almost impossible to produce perfect results by the processes heretofore used, all of which is obviated by the new copper process, which is confined to the Philadelphia Photo-Electrotype Company, 707 and 709 Filbert Street, Philadelphia.

A hand camera has been devised by M. Lumiere, of Lyons, for taking a series of photographs in quick succession. The framed plates move in groves at the back of the camera, being projected forward into position by a spiral spring, as each one, after receiving its image, is released by a bolt and falls down into the bottom of the camera, a counter outside indicating the number of plates used.

Keep albumenized papers in a dry and cool place.

Paper to be sensitized requires a certain amount of moisture, as if very dry it does not take the silver readily, dries in tears, and causes dark spots on the prints.

It is therefore necessary to place the paper to be sensitized between sheets of filter or blotting paper, in a cool and moist place, the night before use (a moist cellar is the most convenient place), when it will absorb sufficient moisture to be fit for floating without trouble.

To Prevent Blisters.—High surface papers are apt to blister, especially during warm weather; however, this can be easily and effectively prevented by the following simple process: To every three gallons of water used for the first washing, after fixing, take about a handful of common cooking salt, and there will never be even a trace of blisters. The weak solution does not affect the tone of the prints in the slightest degree.

In the Twilight Hour.

IN beauty faults conspicuous grow;
The smallest spec is seen on snow.
—*Gray.*

'TIS distance lends enchantment to the view,
And robes the mountain in its azure hue.
—*Campbell.*

OH, the little birds sang east, and the little birds sang west,
And I smiled to think God's greatness flowed around our incompleteness,—
'Round our restlessness,—His rest.
—*E. B. Browning.*

Sleep, gentle sleep,
Nature's soft nurse, how have I frightened thee,
That thou no more wilt weigh mine eyelids down,
And sleep my senses in forgetfulness?
King Henry IV., III., i.

A FAVORITE has no friend.—*Gray.*

CHARMS strike the sight, but merit wins the soul.—*Pope.*

WORK is God's ordinance as truly as prayer.—*Geo. D. Boardman.*

THAT man shall be immortal who liveth until stoned by another without fault.

INSPIRATION is contagious. One man dead in earnest sets a hundred other men on fire.—*F. A. Noble.*

A WICKED civilization is the very highest exhibition of human folly.
—*P. A. Chadbourn.*

EARNESTNESS commands the respect of mankind. A wavering, vacillating, dead-and-alive Christian does not get the respect of the Church or the world.—*John Hall.*

TRUE happiness never flows into a man, but always out of him. Hence heaven is sometimes found in cottages and hell in palaces. Heaven itself is more internal than external.—*J. P. Newman.*

A SINGLE evil will expand itself and usurp the place of much good. A tooth is a little thing, but its aching shuts out the light of sun and stars, the songs of birds, the joy of the household, the wealth of a continent, the power of a kingdom.
J. L. Russell

A GOOD book, whether a novel or not, is one that leaves you farther on than when you took it up. If, when you drop it, it drops you down in the same old spot, with no fairer outlook, no clearer vision, no stimulated desires for that which is better and higher, it is in no sense a good book.
—*Anna Warner.*

IN the conflict with materialism, we appeal to the consciousness of something higher than matter. Why may we not likewise in the conflict with infidelity carry an appeal to our spiritual consciousness? If the skeptic protest, may not the Christian apologist cogently reply: "This consciousness is as open to you as to me. I will not leave out a kind of proof which is unreal to you only because you close your eyes against it."—*Chas. L. Thompson.*

IF a canoe be connected by a cord with a distant ship, one in the canoe may draw himself to the ship, if he cannot draw the ship to himself. So, as has been said, is it with prayer. If it do not bring God to man, it will bring man to God. And this is always well for man. Conscious approach to God lifts man above himself, takes him, for the time, out of this world of ever-changing phenomena, and places him among the changeless verities of eternity.
—*W. P. Breed.*

Literary and Business Notes.

IN continuation of the series "Bibliotèque Photographique," published by Gauthier-Villars et fils, Paris, we have just received "Hydroquinone et Potasse," by George Balagny.

Monsieur Balagny shows himself by this little pamphlet to have paid the very nicest attention to the business of developing dry plates, and that he appreciates in a refined degree what constitutes a superior negative and the difficulty of continually securing excellent work.

He is an enthusiast in the matter of development by hydrochinone. He admits that the finest results are to be obtained with pyro, but shows, as is very true, that the constantly varying action of the pyro developers and their rapid discoloration would seem to make a developer of equal action and long-keeping qualities extremely desirable for the every-day work of the dark room of the professional photographer, and indeed we may say for many amateurs. Having experimented carefully with the various accelerators, he finds potash the least destructive of the keeping qualities of hydrochinone; and this is an important point with him, because it is by the use of a mixture of old and new developers that he professes to overcome the hardness which is the worst fault of hydrochinone as a developing agent. Potash tends more to softness than soda. He advocates rather a large amount of sulphite soda, and the addition of yellow prussiate of potash, which he says hardens the film and keeps the shadows clear. Also, when it may be required in developing, a little bromide which he introduces at the outset only, before the stock of old developer has been acquired, the addition of which to the fresh solution renders its use unnecessary.

THE INTERNATIONAL ANNUAL. Anthony's Photographic Bulletin.

This Annual has reached us in better shape than any of the similar publications which have come to our notice. It is well gotten up, and neatly bound in boards, ready to go upon our shelf as a volume for reference. We appreciate this forethought of the publishers. This volume is the fourth annual publication, and surpasses the previous numbers. The get-up is good, the illustrations excellent, the range of subjects cover experiences in almost every clime, and leave nothing to wish for. We commend the International to all of our readers. Orders may be sent to the publication office of this journal, 1030 Arch Street, Philadelphia.

"PHOTOGRAPHIE DES COULEURS." Par la mâthode interférentielle de M. Lippmann. Par Alphonse Berget, Docteur ès Sciences, etc. Paris, Gauthier-Villars et fils, 1891.

A detailed account of Monsieur Lippmann's photographing in colors, preceded by a brief treatise on the vibratory and wave theories of transmission and interference and reflection, upon which latter M. Lippman's attainment is said to be based.

THE PHOTOGRAPHIC INSTRUCTOR, for Professional and Amateur. Third edition. W. I. Lincoln Adams and Prof. Chs. Ehrman. No. 26 of the Scovill Photographic Series. Scovill & Adams Company, New York; pp. 215, price $1.

PHOTOGRAPHIC OPTICS. W. K. Burton. No. 37 of same series, by same publishers.

The need of a practical text-book on photographic optics is a want which has been long felt by studious photographers. This work, written by a well-known authority, supplies this want. Both of the above publications are well up to the standard of the Scovill Photographic Series. Orders for both works may be sent to the publication office of this journal, and will be filled at publishers' prices.

THE CHEMISTRY OF PHOTOGRAPHY. By Raphael Meldola, F.R.S., etc. Macmillan & Co., London and New York.

This work, one of the "Nature Series," consists of a series of lectures delivered last year as a special course at the Finsbury Technical College. It deals only with the chemical principles which underlie this subject, and goes far to convince photographers how essential the knowledge of chemistry is for the successful carrying on of their operations. We commend this work to the professional as well as the intelligent amateur.

RECENT PATENTS.

THE following list of patents relating to the photographic interests is specially reported by Franklin H. Hough, Solicitor of American and Foreign Patents, No. 925 F Street, N. W., Washington, D. C.

ISSUE OF JUNE 2D, 1891.

453,313—Photographic Background; C. Fredericks, Brooklyn, N. Y.

19,610—(Trademark) Photographic Dry Plates; J. Carbutt, Philadelphia, Pa.

ISSUE OF JUNE 16TH, 1891.

454,433—Photographic Printing Frame, adjustable; H. B. Hennemann, St. Louis, Mo.

454,268—Printing from Collotype or Photo-Gelatine Plates, W. C. Hawkins, Tunnton, Mass.

ISSUE OF JUNE 23D, 1891.

454,518—Developing Dish for Photographers; A. Doyle, New York, N. Y.

ISSUE OF JUNE 30TH, 1891.

454,844—Album Photograph; A. W. Brewerton and M. R. Szamelt, Chicago, Ill.

The *Photo-American Review*, Harry C. Jones, 92 and 94 Fifth Ave., New York. Nos. 1 and 2 of this new candidate for public favor has been received. It claims to be the organ of the American Photographic Conference. In size the new periodical is of the usual magazine size, and is creditably gotten up and bound. The make-up, however, is different from anything which has so far come under our editorial notice. First, there there are two forms, sixteen pages of process cuts of various subjects, with but little or no subject matter, and are apparently merely put in as an advertisement of the publishers. Then follow a few pages of conference matter. The next forty odd pages are taken up with book reviews and notices, but not a single word about any photographic publication or photography. The only conclusion we can draw is that the new magazine has been misnamed, for as a photographic review it certainly is like "Hamlet" without the melancholy Dane.